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## **620            TRAFFIC SIGNAL OPERATIONS**

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Initial timing of traffic signals is the responsibility of the Traffic Operations Section. Maintaining the timing is the responsibility of Regional Traffic Engineering.

All State highway traffic signals which are operated and maintained by ADOT should be periodically reviewed for proper operation. Signals at freeway interchanges require special consideration as to phasing and timing to minimize backup of traffic onto the freeway lanes.

It is through the phasing and timing of the intersection that the principal goals for the signal installation are implemented. The phasing and timing of a traffic signal affect both the safety with which the intersection operates and the efficiency of movement provided to motorists and pedestrians.

There are several principles of traffic signal phasing which the traffic signal designer should remember:

- In general, the fewer the phases a traffic signal has, the better overall traffic service it will provide.
- More phases require longer cycles in coordinated systems.
- In general, more phases result in an overall reduction in intersection capacity, especially if the added phases provide totally protected left turns.
- While protected turn phases may be required to reduce the incidence of certain types of accidents, their use may result in an increase in other types of accidents.
- Where protected left-turn phases may be required, the use of protected/permissive left-turn phasing should be considered.
- Design the signal controller for the future requirements but only implement those phasing requirements needed to accommodate traffic needs.

Once the signal phasing for an intersection has been determined, the timing of the various intervals of the signal and of the relationship of the signal to those at other intersections must be developed. It is this timing that will determine whether the intersection will function to the public's advantage or disadvantage. Therefore, it is necessary to clearly understand the objectives to be achieved for each different type of operation so that the public will be well served.